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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,874	06/29/2001	Hideki Kobayashi	210679US2SRD	9679

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EXAMINER

SHARON, AYAL I

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,874	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	Ayal I Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/29/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20,21,31 and 32 is/are allowed.
- 6) ☒ Claim(s) 1-4,9-13,18,19,22-24,29 and 30 is/are rejected.
- 7) ☒ Claim(s) 1,5-8,14-17 and 25-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/29/01,3/18/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. Claims 1-32 of U.S. Application 09/893,874 filed on 6/29/2001 are presented for examination. This application claims priority to Japanese application 2000-197803, filed on 6/30/2000.

Allowable Subject Matter

2. Claim 20-21 and 31-32 are allowed. The cited prior art does not expressly teach the formulas taught in these claims, nor, in particular, the "recovery rate" of claims 20 and 31, or the "triangular distribution" of claims 21 and 32. Claim 31-32 are computer program claims reciting the equivalent limitations as are recited in method Claims 20-21.

Claim Objections

3. Claim 1 is objected to because of the following informalities: line 7 contains the phrase "a modeling device which perform ...", which should be "... which performs...". Appropriate correction is required.
4. Claims 5-7, 14-16, and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and all intervening claims. The

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cited prior art does not expressly teach the following limitations in combination with the other limitations of the claims:

and approximate-predicts a distribution of the number of manufactured products targeted for reuse by using an average number of manufactured products per unit period obtained by dividing the number of manufactured products by a manufacturing period.

5. Claims 8, 17, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and all intervening claims. The cited prior art does not expressly teach the following limitations in combination with the other limitations of the claims:

and approximate-predicts a distribution of manufactured products in number by using a triangle distribution having its peak value during entry of a next generation model.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 11, and 22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2-4 of copending Application No. 09/818,612. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claim 1 in the present application and independent claims 2-4 in the copending application both concern extracting information pertaining to the life span of parts. The present application refers to these parts as "objects to be reused" and "objects to be recycled", while the copending application refers to these parts as "parts which [are] impossible to upgrade". Examiner finds that it is inherent that parts which are reused or recycled are inherently "impossible to upgrade".
- Corresponding method Claim 11 and computer program Claim 22 are rejected on the same grounds.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claim 1-9, 11-18, and 22-29 are is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/323,792. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claim 1 in the present application and independent claim 1 in the copending application both concern modeling information pertaining to the life span of reuse and recycle components of a final product, as well as estimating the

environmental impact of these components. Corresponding method Claim 11 and computer program Claim 22 are rejected on the same grounds.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The prior art used for these rejections is as follows:

11. Zhou, Mengchu et al., "Evaluation of Environmentally Conscious Product Designs". 1998 IEEE Int'l Conf. on Systems, Man, and Cybernetics. Oct. 1998. vol.4, pp.4057-4061. (Henceforth referred to as "**Zhou**").

12. Anderi, R. et al. "Design for Environment - A Computer-Based Cooperative Method to Consider the Entire Life Cycle." Proc. EcoDesign '99: 1st Int'l Symposium on Environmentally Conscious Design and Inverse Manuf. Feb. 1999. pp.380-385. (Henceforth referred to as "**Anderi**").

13. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

14. **Claims 1-4, 9-13, 18-19, 22-24, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou in view of Anderi.**

15. In regards to Claim 1, Zhou teaches the following limitations:

1. An environmental impact estimation apparatus comprising:

... information concerning a plurality of first objects to be reused and a plurality of second objects to be recycled; and
(Zhou, especially: Section 3 "Disassembly Analysis")

The Node Information Matrix (NIM) contains this information.

... life cycle modeling to generate a life cycle model, the life cycle modeling including reading the information concerning the first objects and the second objects from the storage device,
(Zhou, especially: Section 2 "Retirement Costs" and Section 5 "Application to PC Designs")

The formulas for the different types of cost (Remanufacture, Recycle, Landfill, Disassembly) in Section 2 constitute the basic equations used in the model implemented in Section 5.

selecting some of the first objects and second objects which are diverted to at least one new product from a recovery product using the information,
(Zhou, especially: Section 5 "Application to PC Designs")

Section 5 teaches the comparison of "several major activities in PC recycle and show[s] the retirement treatment benefits of [PC designs] D2 over D1 ..." (see p.4061, para. 1).

and combining some of the first objects and the second objects to fabricate the new product.
(Zhou, especially: Section 5 "Application to PC Designs")

Zhou, while teaching the abstract mathematical algorithm for optimizing the life cycle modeling, does not expressly teach its implementation in a concrete system, such as "a storage device" and "a modeling device" as claimed in the following limitations:

a storage device which stores information concerning a plurality of first objects to be reused and a plurality of second objects to be recycled; and

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a modeling device which perform life cycle modeling to generate a life cycle model,

Anderi, on the other hand, expressly teaches the use of a prototype that "... integrates already existing tools of product design, like 3D-CAD, as well as already developed tools, e.g. the evaluation system." (Anderi, p.380, col.2, para.2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhou with those of Anderi, because Zhou expressly teaches (see p.4061, Section 6 "Future Work", last paragraph) that: "Finally, we need to develop a CAD tool set built upon the concept of Design-For-Retirement and multi-lifecycle engineering such that designers can use it to estimate the retirement timing and performance/cost ratio of their designs and be guided to reach better designs for multi-lifecycle environmentally conscious products."

16. In regards to Claim 2, Zhou teaches the following limitations:

2. An apparatus according to claim 1, further comprising an environmental impact/cost estimating device which estimates an environmental impact and cost based on the life cycle model generated by the modeling device.

(Zhou, especially: The formulas in Section 2 "Retirement Costs")

17. In regards to Claim 3, Zhou teaches the following limitations:

3. An apparatus according to claim 2, which further comprises a data base which stores environmental impact information and cost information,

the environmental impact information concerning respective stages of material acquisition for products, manufacturing, distribution, use, recovery and discharging,

(Zhou, especially: Section 3 "Disassembly Analysis")

The Node Information Matrix (NIM) contains this information.

and wherein the environmental impact/cost estimating device computes the environmental impact and cost of the entire series of multi-generation products based on information generated from the data base and the life cycle model obtained by the modeling device.

(Zhou, especially: Section 5 "Application to PC Designs")

18. In regards to Claim 4, Zhou teaches the following limitations:

4. An apparatus according to claim 1, further comprising a predicting device which predicts a supply quantity of at least one of the first and second objects using the life cycle model generated by the modeling device,

(Zhou, especially: The formulas in Section 2 "Retirement Costs")

and an environmental impact/cost estimating device which estimates environmental impact and cost to be burdened in the reuse or recycle from a prediction result obtained by this predicting device.

(Zhou, especially: The formulas in Section 2 "Retirement Costs")

19. In regards to Claim 9, Zhou teaches the following limitations:

9. An apparatus according to claim 4, which further comprises a data base storing environmental impact information and cost information,

the environmental impact concerning respective stages of material acquisition for products, manufacturing, distribution, use, recovery and discharging,

(Zhou, especially: The formulas in Section 2 "Retirement Costs")

and wherein the environmental impact/cost estimating device computes the environmental impact and cost of the entire series of multi-generation products based on information generated from the data base and the life cycle modeling result caused by the modeling device.

(Zhou, especially: Section 5 "Application to PC Designs")

20. In regards to Claim 10, Zhou teaches the following limitations:

10. A plan aiding apparatus using a recovery product, comprising:

the life cycle modeling including reading the information concerning the objects which configure a product from

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the storage device,
(Zhou, especially: Section 3 "Disassembly Analysis")

The Node Information Matrix (NIM) contains this information.

selecting some of the objects which are
diverted to a new product from the recovery product
using the information, and combining selected ones of
the objects to fabricate the new product; and
(Zhou, especially: Section 5 "Application to PC Designs")

Section 5 teaches the comparison of "several major activities in PC
recycle and show[s] the retirement treatment benefits of [PC designs] D2 over D1
..." (see p.4061, para. 1).

Zhou, while teaching the abstract mathematical algorithm for optimizing
the life cycle modeling, does not expressly teach its implementation in a concrete
system, such as "a storage device" and "a modeling device" as claimed in the
following limitations:

a storage device which stores information
concerning reuse and recycle objects;

a modeling device which perform life cycle
modeling to generate a life cycle model,

Anderi, on the other hand, expressly teaches the use of a prototype that
"... integrates already existing tools of product design, like 3D-CAD, as well as
already developed tools, e.g. the evaluation system." (Anderi, p.380, col.2,
para.2).

In addition, Zhou does not expressly teach the following specific features
of the apparatus:

a support device which supports the plan of the
new product, the support device configured to allocate
combined object symbols targeted for diversion and
an object symbol of the new product on a screen,

and display input windows in correspondence with the

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object symbols and symbol to associate input product information with the object symbols and symbol,

the input product information containing at least any of information on product name, previous model, product useful life, product worth life, manufacturing start time, and number of manufactured products.

Anderi expressly teaches in detail the use of display input windows and input product information (see Section 3.1 "The Recycling Interface"). Anderi also teaches the use of separate object info for the components of a vacuum cleaner (motor, cable, etc. See Fig.2 and the paragraph below Fig.2.). While Anderi does not expressly teach the use of dedicated symbols for these components, Zhou does (See Zhou, Fig.2 and Section 3.2.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Zhou with those of Anderi, because Zhou expressly teaches (see p.4061, Section 6 "Future Work", last paragraph) that: "Finally, we need to develop a CAD tool set built upon the concept of Design-For-Retirement and multi-lifecycle engineering such that designers can use it to estimate the retirement timing and performance/cost ratio of their designs and be guided to reach better designs for multi-lifecycle environmentally conscious products."

21. Claims 11-13, 18, 22-24 and 29 are rejected based on the same reasoning as claims 1-4 and 9, supra. Claims 11-13 and 18 are method claims reciting the equivalent limitations as are recited in apparatus claims 1-4 and 9 and taught throughout Zhou and Anderi. Claims 22-24 and 29 are computer

program claims reciting the equivalent limitations as are recited in apparatus claims 1-4 and 9 and taught throughout Zhou and Anderi.

22. Claims 19 and 30 are rejected based on the same reasoning as claim 10,

supra. Claim 19 is a method claim reciting the equivalent limitations as are recited in apparatus claim 10 and taught throughout Zhou and Anderi.

Claim 30 are computer program claims reciting the equivalent limitations as are recited in apparatus claim 10 and taught throughout Zhou and Anderi.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached at (571) 272-3716.

Any response to this office action should be faxed to (703) 872-9306 or mailed to:

Director of Patents and Trademarks
Washington, DC 20231

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

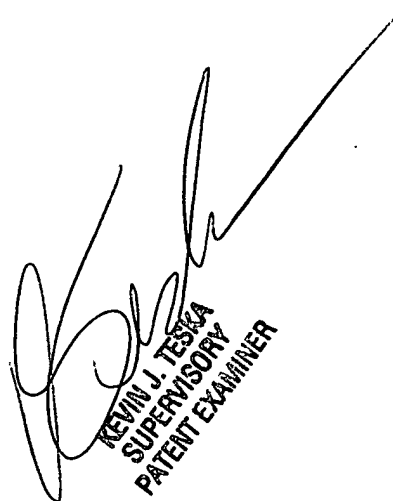
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January 8, 2005



KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER